WHAT IS CLAIMED:

1. A communication node, comprising:

a first network interface for a first network in which data transfer is based on a combination of request and response;

a second network interface for a second network in which data transfer is not based on a combination of request and response;

a packet conversion processing means for applying a packet conversion processing to a first packet received by the first interface and obtain a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

a packet information memory means for storing an information on each second packet transmitted from the communication node;

a packet transmission control means for serializing transmission of a plurality of second packets to the second network by referring to the packet information memory means such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network; and

a constituent element notification means for notifying at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.

2. The communication node of claim 1, wherein the packet transmission control means serializes the plurality of second packets with respect to the second network as a whole, each node on the second network, each constituent element on the second network, or each node on the first network.

3. The communication node of claim 1, wherein the packet transmission control means deletes the information on said one second packet stored in the packet information memory means upon receiving the response packet corresponding to said one second packet, and transmits the next second packet when the information on said one second packet is absent in the packet information memory means.

4. The communication node of claim 1, further comprising:

a time out processing means to be activated at a time of transmitting each second packet, and for deleting the information on each second packet stored in the packet information memory means after a prescribed period of time elapsed.

5. The communication node of claim 4, wherein the prescribed period of time is set according to a type of the application executed across the first and second networks.

6. The communication node of claim 1, wherein the communication node executes both a first processing for transferring packets received from the first network to the second network and a second processing for transferring packets received from the second network to the first network.

7. The communication node of claim 6, wherein the communication node executes the first processing and the second processing by mutually different processing schemes.

8. The communication node of claim 1, wherein the first network is an IEEE 1394 bus.

9. The communication node of claim 1, wherein the second network is an IEEE 802.11 network.

10. The communication node of claim 1, wherein the first packet and the second packet are packets for transferring an AV/C command of an AV/C protocol, and the response packet is a packet for transferring an AV/C response of the AV/C protocol.

11. A communication node, comprising:

a first network interface for a first network in which data transfer is based on a combination of request and response;

a second network interface for a second network in which data transfer is not based on a combination of request and response;

a packet conversion processing means for applying a packet conversion processing to a first packet received by the first interface and obtain a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

a packet correspondence memory means for storing a correspondence between the first packet and the second packet;

a destination node identification means for identifying a destination node on the first network to which a response packet is to be transferred, by referring to the packet correspondence memory means using an information of the response packet at a time of receiving the response packet corresponding to the second packet by the second interface;

a packet information memory means for storing an information on each second packet transmitted from the communication node;

a packet transmission control means for serializing transmission of a plurality of second packets to the second network by referring to the packet information memory means such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network;

a node processing determining means for determining a processing to be executed by the communication node as either a first processing using a combination of the packet correspondence memory means and the destination node identification means or a second processing using a combination of the packet information memory means and the packet transmission control means, according to a type of the first packet; and

a constituent element notification means for notifying at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.

12. The communication node of claim 11, wherein the packet transmission control means deletes the information on said one second packet stored in the packet information memory means upon receiving the response packet corresponding to said one second packet, and transmits the next second packet when the information on said one second packet is absent in the packet information memory means.

13. The communication node of claim 11, further comprising:

a time out processing means to be activated at a time of transmitting each second packet, and for deleting the information on each second packet stored in the packet information memory means after a prescribed period of time elapsed.

14. The communication node of claim 13, wherein the prescribed period of time is set according to a type of the application executed across the first and second networks.

15. The communication node of claim 11, wherein the communication node executes both a first processing for transferring packets received from the first network to the second network and a second processing for transferring packets received from the second network to the first network.

16. The communication node of claim 15, wherein the communication node executes the first processing and the second processing by mutually different processing schemes.

17. The communication node of claim 11, wherein the first network is an IEEE 1394 bus.

18. The communication node of claim 11, wherein the second network is an IEEE 802.11 network.

19. The communication node of claim 11, wherein the first packet and the second packet are packets for transferring an AV/C command of an AV/C protocol, and the response packet is a packet for transferring an AV/C response of the AV/C protocol.

20. A computer usable medium having computer readable program codes embodied therein for causing a computer to function as a communication node having a first network interface for a first network in which data transfer is based on a combination of request and response and a second network interface for a second network in which data transfer is not

based on a combination of request and response, the computer readable program codes include:

a first computer readable program code for causing said computer to apply a packet conversion processing to a first packet received by the first interface and obtain a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

a second computer readable program code for causing said computer to store an information on each second packet transmitted from the communication node in a packet information memory;

a third computer readable program code for causing said computer to serialize transmission of a plurality of second packets to the second network by referring to the packet information memory such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network; and

a fourth computer readable program code for causing said computer to notify at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.

21. A computer usable medium having computer readable program codes embodied therein for causing a computer to function as a communication node having a first network interface for a first network in which data transfer is based on a combination of request and response and a second network interface for a second network in which data transfer is not based on a combination of request and response, the computer readable program codes include:

a first computer readable program code for causing said computer to apply a packet conversion processing to a first packet received by the first interface and obtain a second packet corresponding to the second network at a time of executing an applications across the first network and the second network;

a second computer readable program code for causing said computer to store a correspondence between the first packet and the second packet in a packet correspondence memory;

a third computer readable program code for causing said computer to identify a destination node on the first network to which a response packet is to be transferred, by referring to the second computer readable program code using an information of the response packet at a time of receiving the response packet corresponding to the second packet by the second interface;

a fourth computer readable program code for causing said computer to store an information on each second packet transmitted from the communication node in a packet information memory;

a fifth computer readable program code for causing said computer to serialize transmission of a plurality of second packets to the second network by referring to the fourth computer readable program code such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network;

a sixth computer readable program code for causing said computer to determine a processing to be executed by the communication node as either a first processing using a combination of the packet correspondence memory and the third computer readable program

code or a second processing using a combination of the packet information memory and the fifth computer readable program code, according to a type of the first packet; and

a seventh computer readable program code for causing said computer to notify at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.

22. A method of controlling a communication node having a first network interface for a first network in which data transfer is based on a combination of request and response and a second network interface for a second network in which data transfer is not based on a combination of request and response, the method comprising:

applying a packet conversion processing to a first packet received by the first interface and obtaining a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

storing a correspondence between the first packet and the second packet in a packet correspondence memory; and

identifying a destination node on the first network to which a response packet is to be transferred, by referring to the packet correspondence memory using an information of the response packet at a time of receiving the response packet corresponding to the second packet by the second interface.

23. A method for controlling a communication node having a first network interface for a first network in which data transfer is based on a combination of request and response and a second network interface for a second network in which data transfer is not based on a combination of request and response, the method comprising:

applying a packet conversion processing to a first packet received by the first interface and obtaining a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

storing an information on each second packet transmitted from the communication node in a packet information memory;

serializing transmission of a plurality of second packets to the second network by referring to the packet information memory such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network; and

notifying at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.

24. A method for controlling a communication node having a first network interface for a first network in which data transfer is based on a combination of request and response and a second network interface for a second network in which data transfer is not based on a combination of request and response, the method comprising:

applying a packet conversion processing to a first packet received by the first interface and obtaining a second packet corresponding to the second network at a time of executing an application across the first network and the second network;

storing a correspondence between the first packet and the second packet in a packet correspondence memory;

identifying a destination node on the first network to which a response packet is to be transferred, by referring to the packet correspondence memory using an information of the

response packet at a time of receiving the response packet corresponding to the second packet by the second interface;

storing an information on each second packet transmitted from the communication node in a packet information memory;

serializing transmission of a plurality of second packets to the second network by referring to the packet information memory such that after one second packet is transmitted to the second network, a next second packet is not transmitted to the second network until a response packet corresponding to said one second packet is received from the second network;

determining a processing to be executed by the communication node as either a first processing using a combination of the packet correspondence memory and the identifying step or a second processing using a combination of the packet information memory and the serializing step, according to a type of the first packet; and

notifying at least a part of constituent elements of each node existing on one of the first and second networks as constituent elements of the communication node to another one of the first and second networks.